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ABSTRACT

The study reports the results of the analysis of Comprehension-Production Test in the kindergarten of two bilingual schools (L-1 English/L-2 French, L-1 Spanish/L-2 English) in the San Francisco Bay area. The tests used covered 14 formal contrasts of English. Parallel tests for Spanish and French were developed by translating the English test. Tests were administered in L-1 once at the beginning of the school year and in L-2 three times at regular intervals during the year. Various types of analysis are presented: (1) Correlations between L-1 and L-2 scores; (2) Correlations between Comprehension and Production scores; (3) Significant rank order of difficulty of the 14 contrasts in L-1 and L-2; (4) Determination of (a) significant differences between Comprehension and Production scores, (b) significant gains made in L-2 during the year, (c) significant differences between L-1 scores at the two schools, (d) significant difference between L-2 scores at the two schools. The main conclusions advanced are that (1) in spite of an overall similarity between factors accounting for difficulty in first and second language acquisition interference from L-1 cannot be ruled out as playing a role in early childhood L-2 acquisition. (2) Comparative studies of second language acquisition can furnish an empirical basis for psycholinguistic and perhaps also linguistic theory. (Author)

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# INITIAL LANGUAGE ACQUISITION IN TWO BILINGUAL SCHOOLS

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## Abstract

The study reports the results of the analysis of Comprehension-Production Test in the kindergarten of two bilingual schools (L-1 English/L-2 French, L-1 Spanish/L-2 English) in the San Francisco bay area. The tests used covered 14 formal contrast (e.g., singular/plural - present/past) of English. Parallel tests for Spanish and French were developed by translating the English test. Tests were administered in L-1 once at the beginning of the school year and in L-2 three times at regular intervals during the year.

Various types of analysis are presented: (1) Correlations between L-1 and L-2 scores. (2) Correlations between Comprehension and Production scores. (3) Significant rank order of difficulty of the 14 contrasts in L-1 and L-2. (4) Determination of (a) significant differences between Comprehension and Production scores, (b) significant gains made in L-2 during the year, (c) significant differences between L-1 scores at the two schools, (d) significant difference between L-2 scores at the two schools.

The main conclusions advanced are that (1) in spite of an overall similarity between factors accounting for difficulty in first and second language acquisition interference from L-1 cannot be ruled out as playing a role in early childhood L-2 acquisition. (2) Comparative studies of second language acquisition can furnish an empirical basis for psycholinguistic and perhaps also linguistic theory.

# INITIAL LANGUAGE ACQUISITION IN TWO BILINGUAL SCHOOLS*

This article is a report on the administration of a Comprehension and Production Test to initial kindergarten level second language learners in two bilingual schools (School 1 French/English, School 2 English/Spanish). Both schools are located in the San Francisco area. The French/English bilingual school is a private school attended primarily by children from middle class families. The Spanish/English school represents a public school Bilingual Education Program primarily for Mexican-American pupils. The subjects of this study entered kindergarten in September as monolingual (Spanish, English) speakers. Since language instruction at the kg level in both schools relied on general exposure to the second language ($L_2$) rather than a planned language course, it was felt that following $L_2$ acquisition of the subjects during their first year would give some insights into the nature of second language learning, its similarities to first language learning and the reasons for relative easiness or difficulty of grammatical features in $L_2$ acquisition in early childhood.

Subjects were distributed in the two schools as follows: $L_1$ Spanish/ $L_2$ English: 10 male, 3 female, total: 13; $L_1$ English/$L_2$ French: 10 male, 7 female, total: 17. (Since no significant difference due to sex of subjects found in the study, results for male and female subjects will not be reported separately).

The tests used in the study were administered first in the subjects' native language ($L_1$ Spanish, $L_1$ English) and then at regular intervals during the school year (October, January, April/May) in their second language ($L_1$ English, $L_2$ French). The tests developed for the purpose of the investigation were based on the type of Imitation Comprehension Production (ICP) tests used widely in first language acquisition research (cf. Slobin in Ferguson & Slobin 1973) and included originally an imitation task. The latter, however, was dropped in order to save time in test administrations. The tests consisted of 14 grammatical categories presented in minimal pairs (e.g., affirmative vs. negative). On each test (comprehension or production) each category was represented by two items. Since

items were scored according to errors, the scores of each subject in each category could range from 2 (2 errors) to 0 (both items correct). The order of presentation of item categories as well as the sequence of administration of the comprehension and production test was randomized for all subjects for each administration. Items were also presented in such a way that they were rotated between C and P in subsequent test administrations and no subjects could receive the same items twice at any administration of the test.

The categories chosen for the test were somewhat arbitrarily selected from those used in first language acquisition research, and in some studies dealing with bilingual (Kessler 1971) and second language (Erwin-Tripp 1974) learning. The tests were first developed in English, then translated into French and Spanish. This procedure resulted in some problems. Items which are based on minimal formal contrasts in English (e.g., word order, see Cat. XII below) require more complex contrasts in Spanish or French. Translation of some semantic minimal contrast (see Cats. V and XI below) of English results in non-comparable or somewhat "strained" types of Spanish or French items (see below Cat. V: Mass/Count noun and Cat. XI: Agent/Patient reversal in passive sentences in Spanish). A sample item illustrating each of the 14 categories in English, French, and Spanish is reproduced below:

Category I. (Singular/Plural):

The girl writes/the girls write.
La muchacha escribe/las muchachas escriben.
La fille écrit/les filles écrivent.

Category II. (Present/Past):

The girl is eating/the girl ate.
La muchacha está comiendo/la muchacha comió.
La fille mange/la fille a mangé.

Category III. (Present/Future):

The boy is writing/the boy is going to write.
El muchacho está escribiendo/el muchacho va a escribir.
Le garçon écrit/le garçon va écrire.

Category IV. (Affirmative/Negative):

The donkey is walking/the donkey is not walking.
El burro está caminando/el burro no está caminando.
L'âne marche/l'âne ne marche pas.

Category V. (Mass/Count):

Some chicken/a chicken.
Un poco de pollo/un pollo.
Du poulet/un poulet.

Category VI. (Singular Possessor/Plural Possessor):

Her cat/their cat.
El gato de ella/el gato de ellas.
Son chat/leur chat.

Category VII. (Masculine Subject Pronoun/Feminine Subject Pronoun):

He is writing a letter/she is writing a letter.
El está escribiendo una carta/ella está escribiendo una carta.
Il écrit une lettre/elle écrit une lettre.

Category VIII. (Masculine Object Pronoun/Feminine Object Pronoun):

The dog is biting him/the dog is biting her.
El perro lo está mordiendo/el perro la está mordiendo.
Le chien le mord/le chien la mord.

Category IX. (Direct Object/Indirect Object Reversal):

The boy is showing the dog the cat/the boy is showing the cat the dog.
El muchacho le está enseñando el perro al gato/el muchacho le está enseñando el gato al perro.
Le garçon montre le chien au chat/le garçon montre le chat au chien.

Category X. (Active Sentence: Agent/Patient Reversal):

The truck is pushing the car/the car is pushing the truck.
El camión está empujando el carro/el carro está empujando el camión.
Le camion pousse la voiture/la voiture pousse le camion.

Category XI. (Passive Sentence: Agent/Patient Reversal):

The girl is hit by the boy/the boy is hit by the girl.
La muchacha es golpeada por el muchacho/el muchacho es golpeado por la muchacha.
La fille est frappée par le garçon/le garçon est frappé par la fille.

Category XII. (Embedded Relative Clause: Agent/Patient Reversal):

The boy that the girl hit fell down/the boy that hit the girl fell down.
El muchacho que la muchacha golpeó se cayó/el muchacho que golpeó a la muchacha se cayó.
Le garçon que la fille a frappé est tombé/le garçon qui a frappé la fille est tombé.

Category XIII. (English) word order change: Relative Clause/Simple Main Clause:

The bird he caught/he caught the bird
El pájaro que el cogió/el cogió el pájaro.
L'oiseau qu'il a attrapé/il a attrapé l'oiseau.

Category XIV. "Look & Prep" and Spanish, French equivalent:

The boy is looking at the book/the boy is looking for the book.
El muchacho está mirando el libro/el muchacho está buscando el libro.
Le garçon regarde le livre/le garçon cherche le livre.

Each of the test items is accompanied by 2 pictures illustrating the contrast on which the item is based. For the comprehension task the test administrator shows the subject the 2 pictures, says the 2 sentences which represent the item, then repeats the sentences and asks the subject to point at the picture to which the sentence refers. In the production task the examiner first points to each picture while uttering himself the sentence referring to it. Then, upon being cued by each picture the subject is supposed to reproduce the sentence which describes it. Either $L_1$ or $L_2$ can be used to assure that the subjects understand the task expected of them. Both the comprehension and production tasks are scored as either right or wrong. The scoring of the production task is not quite as unambiguous as that of the comprehension task. (An item is scored as correct if the particular contrast to be elicited is produced in totally correct form, but errors not affecting the particular grammatical feature under investigation are not considered in the scoring).

Tables IA and IB show the mean scores received by the subjects in the administration of the test in their native language ($L_1$) as well as in the 3 administrations in the second language ($L_2$). In interpreting the scores, the reader must keep in mind that mean scores in each category can range from two (all items incorrect) to 0 (no error). Total test scores which are also reported on the Tables could range from 28 (all 2 items in all 14 categories incorrect) to 0 (no error).

The rank order correlations shown in Tables IIA, B, C, show the interrelations of the relative difficulty of the 14 categories in comprehension and production within as well as across schools. The mean scores are highly correlated, not only between comprehension and production scores in the same language (Table IIC) but in comprehension and production in $L_1$ and $L_2$ across schools (Tables IIA, B). These generally

TABLE IA

Mean Scores and Standard Deviation in 14 Categories in $L_1$ $L_2$ Comprehension (C) and Production (P)

School 1 ($L_1$=Spanish, $L_2$=English)

| | $L_1$ | | $L_2$ (Adm. 1) | | $L_2$ (Adm. 2) | | $L_2$ (Adm. 3) | |
|---|---|---|---|---|---|---|---|---|
| | C | P | C | P | C | P | C | P |
| Category | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. |
| I | 0.75,0.75 | 0.17,0.39 | 1.68,0.79 | 1.50,0.52 | 1.33,0.65 | 1.33,0.49 | 1.09,0.70 | 1.55,0.52 |
| II | 1.25,0.75 | 0.58.067 | 0.67,0.78 | 1,08,0.67 | 0.67,0.78 | 1.17,0.58 | 0.64,0.50 | 1.18,0.60 |
| III | 0.67,0.78 | 0.67,0.78 | 0.83,0.49 | 1.42,0.79 | 0.42,0.67 | 1.50,0.67 | 0.18,0.40 | 1.00,0.89 |
| IV | 0.08,0.29 | 0.17,0.39 | 0.58,0.79 | 0.92,0.67 | 0.33,0.65 | 0.33,0.49 | 0.18,0.40 | 0.45,0.52 |
| V | 0.00,0.00 | 0.00,0.00 | 0.83,0.72 | 1.08,0.79 | 1.00,0.74 | 0.92,0.67 | 1.09,0.83 | 1.00,0.89 |
| VI | 0.58,0.67 | 0.08,0.29 | 0.58,0.57 | 1.58,0.67 | 0.67,0.65 | 1.00,0.43 | 0.27,0.65 | 0.82,0.75 |
| VII | 0.42,0.67 | 0.08,0.27 | 0.67,0.49 | 1.42,0.57 | 0.75,0.62 | 1.25,0.75 | 0.43,0.79 | 1.27,0.79 |
| VIII | 0.75,0.73 | 1.55,0.69 | 1.33,0.89 | 1.25,0.62 | 0.92,0.79 | 1.50,0.52 | 0.45,0.52 | 1.18,0.75 |
| IX | 1.17,0.72 | 1.33,0.89 | 1.08,0.29 | 1.75,0.45 | 1.00,0.74 | 1.92,0.29 | 1.27,0.65 | 1.73,0.47 |
| X | 0.58,0.67 | 0.42,0.67 | 0.67,0.03 | 1.42,0.79 | 0.50,0.67 | 0.75,0.75 | 0.45,0.69 | 1.00,0.89 |
| XI | 0.50,0.53 | 1.50,0.75 | 1.33,0.78 | 1.83,0.39 | 1.00,0.74 | 1.83,0.39 | 1.18,0.75 | 1.91,0.30 |
| XII | 0.92,0.79 | 1.64,0.67 | 1.42,0.67 | 2.00,0.00 | 0.92,0.67 | 1.83,0.39 | 1.00,0.77 | 1.91,0.30 |
| XIII | 1.50,0.67 | 1.42,0.79 | 1.25,0.87 | 1.83,0.39 | 1.08,0.79 | 1.67,0.65 | 1.36,0.67 | 1.64,0.67 |
| XIV | 0.07,0.78 | 0.58,0.79 | 0.83,0.58 | 1.92,0.29 | 1.00,0.60 | 1.83,0.58 | 0.73,0.79 | 1.55,0.69 |
| TOTAL | 9.67,2.61 | 9.42,4.01 | 12.67,3.73 | 21.00,4.51 | 11.58,2.64 | 18.03,2.79 | 10.64,3.72 | 18.18,5.23 |

TABLE IB

Mean Scores and Standard Deviantion in 14 Categories in $L_1$ $L_2$ Comprehension (C) and Production (P)

School 2 ($L_1$= English, $L_2$= French)

| | $L_1$ | | $L_2$ (Adm. 1) | | $L_2$ (Adm. 2) | | $L_2$ (Adm. 3) | |
|---|---|---|---|---|---|---|---|---|
| | C | P | C | P | C | P | C | P |
| Category | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. | $\bar{x}$ S.D. |
| I | 0.44,0.73 | 1.13,0.76 | 0.23,0.74 | 1.46,0.78 | 0.18,0.40 | 1.45,0.82 | 0.33,0.49 | 1.08,0.49 |
| II | 0.13,0.34 | 0.82,0.83 | 0.85,0.80 | 1.46,0.66 | 0.36,0.50 | 1.55,0.69 | 0.00,0.29 | 1.00,0.60 |
| III | 0.19,0.84 | 0.38,0.62 | 0.54,0.78 | 1.62,0.65 | 0.18,0.40 | 1.36,0.67 | 0.17,0.39 | 0.75,0.75 |
| IV | 0.06,0.25 | 0.06,0.25 | 0.31,0.48 | 1.38,0.65 | 0.00,0.00 | 1.18,0.60 | 0.00,0.00 | 0.92,0.51 |
| V | 0.19,0.40 | 0.50,0.82 | 0.77,0.44 | 1.54,0.52 | 1.27,0.79 | 1.67,0.67 | 1.33,0.78 | 1.17,0.83 |
| VI | 0.13,0.50 | 0.00,0.00 | 0.54,0.78 | 1.31,0.48 | 0.45,0.52 | 1.18,0.60 | 0.33,0.65 | 0.83,0.83 |
| VII | 0.13,0.34 | 0.19,0.54 | 0.77,0.73 | 1.15,0.80 | 0.45,0.52 | 1.27,0.90 | 0.17,0.39 | 0.50,0.80 |
| VIII | 0.00,0.00 | 0.38,0.72 | 0.54,0.52 | 1.54,0.66 | 0.91,0.70 | 1.64,0.67 | 0.88,0.58 | 1.17,0.83 |
| IX | 1.06,0.85 | 1.25,0.77 | 1.31,0.43 | 1.92,0.28 | 1.36,0.67 | 2.00,0.00 | 1.33,0.65 | 1.83,0.39 |
| X | 0.13,0.34 | 0.19,0.54 | 0.38,0.51 | 1.31,0.75 | 0.27,0.47 | 0.36,0.67 | 0.25,0.45 | 0.42,0.67 |
| XI | 0.50,0.63 | 1.19,0.98 | 1.31,0.85 | 1.92,0.28 | 1.18,0.75 | 1.73,0.00 | 1.08,0.79 | 1.75,0.62 |
| XII | 0.88,0.50 | 1.88,0.34 | 1.46,0.66 | 2.00,0.00 | 0.91,0.70 | 2.00,0.00 | 0.67,0.65 | 0.92,0.29 |
| XIII | 1.50,0.63 | 1.38,0.62 | 1.46,0.78 | 1.92,0.28 | 1.18,0.60 | 2.00,0.00 | 1.17,0.58 | 1.83,0.39 |
| XIV | 0.88,0.62 | 1.25,0.77 | 0.85,0.80 | 1.54,0.66 | 0.55,0.69 | 1.09,0.83 | 0.17,0.39 | 0.58,0.67 |
| TOTAL | 6.19,2.54 | 10.56,14.13 | 11.31,3.59 | 22.08,4.23 | 9.27,2.65 | 20.45,5.13 | 7.92,2.40 | 15.75,4.57 |

TABLE IIA

Intercorrelation Between Class Mean Scores in Comprehension in Spanish $L_1$ English $L_2$ (1st Adm.), English $L_1$ and French $L_2$ (1st Adm.)

(N=14)

| | $L_1$ Spanish | $L_2$ English | $L_1$ English | $L_2$ French |
|---|---|---|---|---|
| $L_1$ Spanish | X | 0.32 | 0.64** | 0.53* |
| $L_2$ English | | X | 0.53* | 0.61** |
| $L_1$ English | | | X | 0.79** |
| $L_2$ French | | | | X |

TABLE IIB

Intercorrelation Between Class Mean Scores in Comprehension in Spanish $L_1$ English $L_2$ (1st Adm.), English $L_1$ and French $L_2$ (1st Adm.)

(N=14)

| | $L_1$ Spanish | $L_2$ English | $L_1$ English | $L_2$ French |
|---|---|---|---|---|
| $L_1$ Spanish | X | 0.56** | 0.61** | 0.83** |
| $L_2$ English | | X | 0.70** | 0.62** |
| $L_1$ English | | | X | 0.82** |
| $L_2$ French | | | | X |

TABLE IIC

Correlation Between Class Mean Scores in Comprehension and Production

(N=14)

| $L_1$ Spa. C/$L_1$ Spa. P | $L_2$ Eng. C/$L_2$ Eng. P | $L_1$ Eng. C/$L_1$ Eng. P | $L_2$ Fre. C/$L_2$ Fre. P |
|---|---|---|---|
| 0.58** | 0.53** | 0.77** | 0.82** |

* $P < .05$
** $P < .001$

high correlations between first and second language tasks corroborate previous findings concerning the relation of $L_1$ and $L_2$ performance in bilingual children (Kessler 1972). Part of the reason for the high correlation is evidently that the 14 categories chosen for the test included tasks which are not yet mastered in $L_1$ and for which $L_2$ mastery appears, therefore, definitely out of reach for most of the kg subjects.

Table III shows the rank order of difficulty for the 14 categories within each test. The ordering of difficulty in $L_2$ (French) and $L_2$ (English) utilizes the data obtained from the first test administration which took place early in the school year at approximately the same time as the only administration of the $L_1$ tests. The statistical significance of any one of the rankings in either Comprehension or Production is limited to differences between statistically homogeneous groups (cf. Duncan's multiple range test, Siegel, 1956). Nevertheless, the Table gives a good overall picture as to what categories tend to be relatively easy or difficult: Categories like XII (Agent/Patient Reversal in the embedded relative clause), XIII (Word order change in English and its French, Spanish equivalents), XI (Agent/Patient Reversal in a passive sentence) do not appear within the competence of any or at least the majority of the subjects in either $L_1$ and $L_2$.

Significant differences between Comprehension and Production scores are summarized on Table IV. The differences are always in favor of Comprehension. In first language learning research this fact is usually interpreted to mean that the acquisition of Comprehension precedes the one of Production. The findings of this study certainly show that also in second language acquisition Comprehension scores are better than Production scores. It has been pointed out recently (Baird 1972) that the better comprehension scores may in part at least be an artifact of the basic statistical incomparability of the scoring systems used for the two tasks. Thus one can only assert that the Comprehension/Production relation for $L_2$ seems to be the same as for $L_1$, without necessarily making strong claims for a Comprehension/Production sequence in either $L_1$ and $L_2$ learning.

Table V indicates the categories in which significant variance occurs in $L_2$ administrations. In all instances except one, the significant variance is as expected in the direction of improvement during the school year.

TABLE III

Ranking of Categories by Difficulty in $L_1$ English, $L_2$ French (1st Adm.), $L_1$ Spanish and $L_2$ English (1st Adm.) in C (Comprehension) and P (Production)

| Rank | $L_1$ English | | $L_2$ French | | $L_1$ Spanish | | $L_2$ English | |
|---|---|---|---|---|---|---|---|---|
| | C | P | C | P | C | P | C | P |
| 1 | VIII | VI | I | VII | V | V | III | IV |
| 2 | IV | IV | IV | X | IV | VII | VI | V |
| 3 | X | X | X | VI | VII | VI | IV | II |
| 4 | VII | VII | VIII | IV | XI | IV | X | VIII |
| 5 | VI | VIII | VI | II | X | I | VII | X |
| 6 | II | III | III | I | VI | X | II | VII |
| 7 | V | V | VII | XIV | III | XIV | XIV | III |
| 8 | III | II | V | VIII | XIV | II | V | I |
| 9 | I | I | XIV | V | VIII | III | IX | VI |
| 10 | XI | XI | II | III | I | IX | I | IX |
| 11 | XIV | XIV | XI | XIII | XII | XIII | XIII | VIII |
| 12 | XII | IX | IX | XI | IX | XI | XI | XI |
| 13 | IX | XIII | XIII | IX | II | VIII | VIII | XIV |
| 14 | XIII | XII | XII | XII | XIII | XII | XII | XII |

Indicates that rankings within groups are not significant at the 0.05 level according to Duncan's multiple range test (C. F. Siegel, 1956).

TABLE IV

Significant Difference ($p. < 05$) Between Comprehension (C) and Production (P) According to Critical Values Computed by Duncan's Multiple Range Test

| | $L_1$ Spanish | $L_2$ English | | | $L_1$ English | $L_2$ French | | |
|---|---|---|---|---|---|---|---|---|
| Category | | Adm. 1 | Adm. 2 | Adm. 3 | | Adm. 1 | Adm. 2 | Adm. 3 |
| I | NS | NS | NS | NS | P <.05 | P <.05 | P < .05 | P < .05 |
| II | P < .05 | NS | NS | NS | P < .05 | P < 05 | P < .05 | P < .05 |
| III | NS | P < .05 | P < .05 | P < .05 | NS | P < .05 | P < .05 | P < .05 |
| IV | NS | NS | NS | NS | NS | P < .05 | P < .05 | P < .05 |
| V | NS | NS | NS | NS | NS | P < .05 | NS | NS |
| VI | NS | P < .05 | NS | NS | NS | P < .05 | P < .05 | NS |
| VII | NS | P < .05 | NS | NS | NS | NS | P < .05 | NS |
| VIII | P < .05 | NS | NS | P < .05 | NS | P < .05 | P < .05 | NS |
| IX | NS | P < .05 | P < .05 | NS | NS | P < .05 | P < .05 | NS |
| X | NS | P < .05 | NS | NS | NS | P < .05 | NS | NS |
| XI | P < .05 | NS | P < .05 | P < .05 | P < .05 | P < .05 | NS | P < .05 |
| XII | P < .05 | NS | P < .05 | P < .05 | P < .05 | NS | P < .05 | NS |
| XIII | NS | NS | NS | NS | NS | NS | P < .05 | P < .05 |
| XIV | NS | P < .05 | P < .05 | P < .05 | NS | P < .05 | NS | NS |

TABLE V

Significant Variance Between
$L_2$ Test Administrations

| | $L_2$ English | | $L_2$ French | |
|---|---|---|---|---|
| Category | C | P | C | P |
| I | NS | NS | NS | NS |
| II | NS | NS | d.f. 2.33, f=4.67* | d.f. 2.32, f=4.76* |
| III | NS | NS | NS | d.f. 2.33, f=10.37* |
| IV | NS | NS | d.f. 2.37, f=3.76* | NS |
| V | NS | NS | d.f. 2.32, f=5.10** | NS |
| VI | NS | d.f. 2.32, f=4.60* | NS | NS |
| VII | NS | NS | d.f. 2.32, f=4.43* | NS |
| VIII | d.f. 2.32, f=3.59* | NS | NS | NS |
| IX | NS | NS | NS | NS |
| X | NS | d.f. 2.32, f=4.10* | NS | d.f. 2.32, f=9.48** |
| XI | NS | NS | NS | NS |
| XII | NS | NS | d.f. 2.32, f=3.55* | NS |
| XIII | NS | NS | NS | NS |
| XIV | NS | NS | d.f. 2.32, f=4.76* | d.f. 2.37, f=4.90* |

*P <.05
**P <.01

The exception is represented by comprehension of category V in French (du poulet/un poulet) in which performance deteriorates during the school year. Observations made in the classes suggest as a possible reason, that forms like du or de la were first learned in association with the partitive article and later in connection with the indication of possession. As the forms assumed multiple syntactic functions comprehension of the forms evidently deteriorated.

Statistically significant improvement occurs more frequently in the French/English school than in the Spanish/English setting. In $L_2$ English Comprehension only one category, namely VIII (him/her) improves significantly during the year. In $L_2$ French statistically significant improvement occurs in 5 categories; II (present vs. past), IV (affirmative/negative), VII (il/elle), XII (embedded relative clause) and XIV (regarder, chercher and other vocabulary equivalents of English look & "prep").

In $L_2$ English Production significant improvement is restricted to 2 categories: VI (his, her/their), X (agent/patient reversal in active clause). $L_1$ French Production improves significantly in 4 tasks: II (present/past) III (present/future), X (agent/patient reversal in active clause), XIV (regarder, chercher etc.).

In general, it appears that with few exceptions (notably $L_2$ French Comprehension in category XII), significant improvement occurs with grammatical features which are relatively easy and which are evidently learned first. Thus both $L_2$ French and English show improvement in the simple declarative sentence production (category X). French $L_2$ improves in C as well as P in category XIV which for French represents simply the learning of new vocabulary items. In English the same category (look & "prep") is difficult and evidently beyond the range of significant improvement within the period investigated.

Tables VIA and B show the cross comparisons between the 2 $L_1$ languages (English, Spanish) and the 2 $L_2$ languages (French, English) in terms of difficulty of categories. For the $L_1$ comparisons only one test administration was available. The significant $L_1$ differences occur in the following categories:

TABLE VIA

Significant Differences Between $L_1$ (Spanish/English) and $L_2$ (English/French) Comprehension Scores

| | $L_1$ (Spanish, English) | | $L_2$ (English, French) | |
|---|---|---|---|---|
| Category | | 1st Adm. | 2nd Adm. | 3rd Adm. |
| I | NS | d.f. 24.1 f= 11.31** | d.f. 22.1 f= 25.35** | d.f. 22.1 f=9.13** |
| II | d.f. 26.1 f= 26.03** | NS | NS | d.f. 22.1 f=10.65** |
| III | NS | NS | NS | NS |
| IV | NS | NS | NS | NS |
| V | NS | NS | NS | NS |
| VI | d.f. 26.1 f= 3.90 (p=0.06) | NS | NS | NS |
| VII | NS | NS | NS | d.f. 22.1 f=4.82* |
| VIII | d.f. 26.1 f= 15.00** | d.f. 24.1 f= 7.62** | NS | NS |
| IX | NS | NS | NS | NS |
| X | d.f. 26.1 f= 5.07* | NS | NS | NS |
| XI | NS | NS | NS | NS |
| XII | NS | NS | NS | NS |
| XIII | NS | NS | NS | NS |
| XIV | NS | NS | NS | d.f. 22.1 f=11.57** |
| Total Scores | d.f. 26.1 f= 11.36** | NS | d.f. 22.1 f= 4.37* | d.f. 22.1 f=4.43* |

*P <.05
**P <.01

TABLE VIB

Significant Differences Between $L_1$ (Spanish, English) and $L_2$ (English, French) Production Scores

| | $L_1$ (Spanish, English) | | $L_2$ (English, French) | |
|---|---|---|---|---|
| Category | | 1st Adm. | 2nd Adm. | 3rd Adm. |
| I | d.f. 26.1 f= 12.65** | NS | NS | d.f. 22.1 f= 2.37 (p=0.08) |
| II | NS | NS | NS | NS |
| III | NS | NS | NS | NS |
| IV | NS | d.f. 24.1 f= 3.15 (p=0.08) | d.f. 22.1 f= 13.77** | d.f. 22.1 f= 4.56* |
| V | d.f. 25.1 f= 4.45* | NS | d.f. 22.1 f= 6.60* | NS |
| VI | NS | NS | NS | NS |
| VII | NS | NS | NS | d.f. 22.1 f= 5.46* |
| VIII | d.f. 25.1 f= 18.55** | NS | NS | NS |
| IX | NS | NS | NS | NS |
| X | NS | NS | NS | d.f. 22.1 f= 3.18 (p=0.08) |
| XI | NS | NS | NS | NS |
| XII | NS | NS | NS | NS |
| XIII | NS | NS | NS | NS |
| XIV | d.f. 26.1 f= 4.14* | d.f. 24.1 f= 3.34 (p=0.07) | d.f. 22.1 f= 6.28 | d.f. 22.1 f= 4.43* |
| Total Scores | NS | NS | NS | NS |

*P .05
**P .01

Category I (Singular/Plural) is more difficult in English than in Spanish in Production. The category is generally assumed to be well within the competence of monolingual English kg children (cf. Brown 1973). The reason for the difficulty experienced in the English Production test may be due to the juxtaposition of sentences in which the same marker ("-s") denotes singularity of the verb and plurality of the noun.

Category II (Present/Past) is more difficult in Spanish than in English in Comprehension. A possible reason for this may be the relative lack of familiarity of the Spanish subjects with the simple past tense (or at least some of its standard Spanish forms utilized in the test).

Category V (Mass/Count) the mass count distinction is more difficult in Production in English than its Spanish equivalent is for the Spanish subjects. As mentioned above, the contrast some/a is not exactly comparable to the one expressed by un poco de/un. The latter is also more distinctly marked and thus much easier.

Category VI: Near significance ($p=0.06$) is reached by the difference between Comprehension of English her/their as opposed to the Spanish de ella/de ellas, the latter being more difficult than the former. The reason for the difference seems to be again in the more distinct marking in English.

Category VIII: In both Comprehension and Production the him/his distinction of English is easier than the lo/le contrast of Spanish. A plausible reason is the more distinct marking of English and the sentence final position of the English pronouns which makes it easier to recall the critical differences between the minimal pairs of sentences.

Category X: The Agent/Patient reversal in the simple declarative clause is easier in English than in Spanish. Agents and Patients for the sentence were all logically reversible. Thus for the English speakers word order could be used as the only and unambiguous clue for the function of the nouns in the sentences. This was not the case in Spanish for the Spanish speakers which in fact may have been faced with somewhat ambiguous sentences.

Category XIV: The Production of the "look & prep" type of sentence is more difficult in English than in Spanish. Even for the native English

$L_1$ speakers the two part verb distinction still seems to pose some problems at the kg level, at least in a minimal contrast type of Production task.

To conclude the $L_1$ comparison, there is also a significant difference in total test performance in favor of $L_1$ English speakers in Comprehension. One could only speculate about the possible reasons. One of them has already been intimated in conjunction with the discussion of specific categories: The fact that the Spanish $L_1$ test is the literal translation of an instrument developed first in English may at least be partly responsible for the apparently lower performance of the Spanish $L_1$ group. To what extent the cultural and socio-economic differences between the pupils of the bilingual schools may be reflected in the test results is another possible area of speculations.

The significant differences in $L_2$ acquisition shown by the cross comparison of $L_2$ English and $L_2$ French test administrations are the following.

Category I: Singular/Plural contrast of English $L_2$ is more difficult than the corresponding French $L_2$ task. The difference between $L_2$ English/$L_2$ French is significant for all administrations of the Comprehension task and reaches significance at the 3rd administration of the Production test.

Category II: The Present/Past contrast is significantly easier in French $L_2$ than in English $L_2$ at the time of the 3rd test administration.

Category IV: The Affirmative/Negative contrast (i.e., the Production of the French negative ne pas) is more difficult than its English counterpart (is not) for all 3 administrations.

Category V: Production of the French partitive is more difficulty than the one of its English equivalent (some & noun) at the 2nd administration.

Category VII: The he/she contrast of English $L_2$ is more difficult than the il/elle distinction of French in both Comprehension and Production at the 3rd administration.

Category VIII: The him/her distinction of English is more difficult than the French contrast le/la in Comprehension at the 1st administration.

Category X: The 3rd test administration scores in Production of Agent/Patient reversal in the declarative sentence approach a significant difference in favor of French over English.

Category XIV: Look & prep is more difficult in English than its French equivalents in all 3 administrations for Production and on the 3rd administration for Comprehension.

Some of the significant $L_2$ English/$L_2$ French differences reflect directly the findings concerning the $L_1$ comparisons. Thus the singular/plural contrast (cat. I) and the "look & prep" tasks (cat. XIV) which were more difficult in $L_1$ English than in $L_1$ Spanish are also more difficult in $L_2$ English than in $L_2$ French.

At least 2 of the tasks in which French $L_2$ is more difficult than English $L_2$ appear to be connected with the relatively greater complexity of the French construction: category IV (negative with ne pas) and category V (the partitive article).

In Categories VII (he/she: il/elle) VIII (him/her: le/la) and X (agent/patient reversal) the greater difficulty posed by $L_2$ English does not seem directly related to the higher complexity of English as compared to French. As a matter of fact, in $L_1$ comparisons $L_1$ English won out over $L_1$ Spanish in the last two (VIII, X) of the categories. The most plausible reason for the greater difficulty of the English task is native language interference: In the pictorial cues used for the he/she and him/her contrasts gender was always identical with sex. This may have minimized English interference in French, but not necessarily Spanish interference in English since, unlike the English gender contrast, the Spanish one is not primarily tied to a sex distinction. As far as category X is concerned it has been pointed out already that agent/patient reversal in English and Spanish are not exactly comparable. In French and English however, the agent/patient reversal correspond insofar as they only represent a simple switch in the position of the nouns. The English/French parallelism could thus account for the somewhat better performance of the $L_1$ English/French $L_2$ subjects in French.

It will also be noted that at the 2nd and 3rd test administrations the overall scores in French $L_2$ Comprehension are better than those in English $L_2$ Comprehension. This finding parallels the $L_1$ differences between the two schools ($L_1$ English Comprehension $L_1$ Spanish Comprehension). Again, one could only speculate whether this difference is the result of specific test items or some general factors influencing test outcomes (e.g., the amount of effort or attention spent on test taking by two groups of pupils having different cultural and socio-economic backgrounds).

This study is meant to be only a pilot. It furnishes some indication of the type of data and conclusions that can be expected by a comparative

psycholinguistic approach. Comparative developmental psycholinguistics as applied to first language acquisition is already a well-established discipline advanced to the point where even the existence of universals is under serious discussion (Slobin 1970). The developmental psycholinguistics of second language acquisition has a long way to go before general conclusions concerning second language learning universals can be advanced (e.g., Hatch 1974).

Some of the factors influencing degree of difficulty in second language acquisition (e.g., complexity of structures, relative position in the utterance, relative simplicity of relation of signified to signifier) have an expected similarity with those also present in first language learning (e.g., Slobin 1970). However, we believe that even at the kg level interference from the native language cannot simply be ruled out.

Some results of our study also imply that data gathered by the administration of a specific test instrument may have to be interpreted cautiously and need to be validated against results obtained through the observation of more natural speech events. The above mentioned relative difficulty of the English plural category for English $L_1$ speakers shown by our tests seems to be a good example of an instance in which the data reflect item difficulty in a test rather than the speakers' normal linguistic competence.

It has been suggested recently (Dulay and Burt, 1974) that the linguistic features accounting for sequence and difficulty in language acquisition can perhaps be found best not by referring to preconceived notions of grammatical complexity but by empirical investigations. Comparative psycholinguistics of second language acquisition will make substantial contributions to furnish an empirical basis of psycholinguistics and perhaps ultimately even to the creation of a psychologically real theory of linguistics.

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